

# How Transformation and JCIDS Impact Construction Equipment Modernization

By Mr. John Hegle and Mrs. Cathy Pryor



**Y**our unit has old, maintenance-intensive construction equipment in need of replacement. While you appreciate the newer systems you've received, such as the hydraulic excavator or vibratory roller, equipment such as loaders and water distributors is in such bad shape you wonder if anyone cares about the unit's ability to accomplish its missions. Some of the equipment just went through a service life extension program, but much of it isn't suitable or cost-effective to rebuild. You may be short of equipment because it was so worn that it was "coded out." It may be difficult to find repair parts for some of the other equipment, or else the parts are very expensive. The unit may even have had to rent or lease equipment, and spent so much it would have been better off buying the equipment—but was told it couldn't. Surely this isn't the way things are supposed to work. Is anyone at the U.S. Army Engineer School planning to help? What is going on?

**C**hange is going on, and sometimes change is painful. Army transformation, the Joint Capabilities Integration and Development System (JCIDS), and the Total Army Analysis process are producing many changes, challenges, and opportunities for the Engineer Regiment. Trying to be responsive to the field in the near term while preparing for the future is a significant challenge. Current world events don't make things easier. Couple that with an acquisition process that has changed almost constantly over the last four years, becoming more complex and time-consuming in an

environment where everything is a possible bill payer, and you have the perfect setting for frustration.

Although the construction equipment budget has been slashed, work continues to define and document the requirements that will enable programming of funds. To understand the situation, you must know the lay of the land. To help yourselves, you must help us sell the critical role that construction equipment is playing in Operation Iraqi Freedom and Operation Enduring Freedom and that it will play in the Future Force. If the Engineer Regiment can't make this case, our chances of getting funding are slender, and our relevance to future operations will decline.

## Situational Awareness

**T**o be successful in the future, we must understand the environment we are operating in. At one end of the spectrum, we have the true, on-the-ground field environment—the soldier who can't understand why the Army does not replace his 25-year-old 5-yard loader and who pressed new Taliban loaders into service in Afghanistan because they actually worked. The need for reliable, supportable construction equipment is well understood at this level since it affects day-to-day operations. On the other end of the spectrum—where funding decisions are made—construction equipment must compete against a wide array of systems in a time of very limited resources. This is an arena where budget

<b>Report Documentation Page</b>			Form Approved OMB No. 0704-0188	
<p>Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p>				
1. REPORT DATE <b>MAR 2004</b>	2. REPORT TYPE	3. DATES COVERED <b>00-00-2004 to 00-00-2004</b>		
4. TITLE AND SUBTITLE <b>How Transformation and JCIDs Impact Construction Equipment Modernization</b>			5a. CONTRACT NUMBER	
			5b. GRANT NUMBER	
			5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)			5d. PROJECT NUMBER	
			5e. TASK NUMBER	
			5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>U.S. Army Engineer School, 14010 MSCoE Loop BLDG 3201, Suite 2661, Fort Leonard Wood , MO, 65473-8702</b>			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)	
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>3</b>
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>	19a. NAME OF RESPONSIBLE PERSON	

decisions may be made in minutes, often without an understanding of their impact on programs or the soldier on the ground. Decisions may be biased against buying new equipment because of the belief that “we can rent or lease commercial equipment if we need it.” It is this end of the spectrum where we need to inject reality and understanding. While the future is uncertain, there are many things we know will be required of engineers and their equipment in the Future Force. Engineers will still be called upon to maintain the mobility of the force. Forces will rapidly deploy to territories and occupy them, and sustainment operations will be required. Many missions performed today will still be required tomorrow.

## Missions

**F**rom a mission perspective, the physics of earthmoving are not going to change, and the requirements to build and repair roads and airfields and perform other construction missions are not going away. We must reduce the footprint of the force, minimize sortie requirements, and yet still accomplish our missions. We must identify the right mix of organizations and equipment. How many units and systems need to be transportable by C-130 aircraft? How many can’t be because productivity and timely mission accomplishment outweigh initial deployability? We must pursue more reliable, less logistically burdensome systems that are easier to train, operate, and maintain.

## Requirements

**M**issions drive organizations, which drive system requirements. As we modernize, we must take a hard look at where we are going and ensure that equipment evolves with our missions. We do not want to buy new equipment just for the sake of replacing the old. The Future Force will be a joint force. Deployability, speed, and responsiveness are critical to Future Combat System units and their survivability, as these forces move between noncontiguous areas of operation. Ultra-reliability, two-level maintenance, embedded diagnostics, and other factors also must be considered. These design goals are driven by the Army’s transformation objectives.

How does this affect construction equipment? Commercial equipment brings reliability and supportability, but it typically must be adapted to meet Army requirements, such as the addition of blackout lights, a NATO slave adapter, tie-downs, or the redesign or removal of the cab to fit under bridges. Some equipment must meet airdrop, helolift, C-130 airlift or self-deployability requirements. This can drive us to develop military-unique equipment, sometimes compromising the benefits of commercial equipment. We seek to minimize these impacts on the force.

The implementation of JCIDS is a new challenge for the acquisition community and for engineers in particular. Gone are the days when engineers, or even the Army, dictated their own requirements. Today, requirements are top-down driven and supported by a joint vision with a joint concept of

operations. Requirements are developed and evaluated from a joint perspective. An Initial Capabilities Document (ICD) replaces the Mission Need Statement (MNS), and the Operational Requirements Document (ORD) is replaced by a Capabilities Development Document (CDD) and/or a Capabilities Production Document (CPD). The JCIDS is oriented toward identifying and filling capability gaps rather than modernizing existing systems, the primary concern with construction equipment today. The bottom line is that we must ensure that our requirements and capability gaps caused by unreliable construction equipment are expressed and validated by the Department of the Army and the Joint Focused Logistics Capability Review Board and are understood to be critical to the Future Force and joint forces commander.

## Budget Challenges

**W**e can’t program money without an approved requirements document. We can’t defend Program Objective Memorandum (POM) funding without a clear link to the needs of the Future Force. We must fight the perception that construction equipment is a low priority and that we can buy, lease, or rent equipment or get a contractor to do the mission at the last minute. While the argument that commercial equipment is readily available is attractive on the surface, the truth is that leasing, renting, and buying nonstandard commercial equipment is much more costly in the long run. Equipment bought by units on an as-needed basis—

- Does not meet all approved user requirements for each specific equipment end item.
- Does not comply with Army regulations for type classification and materiel release.
- Has not been tested or given a safety release.
- Is not logistically supportable by Army maintenance and supply and does not have sustainment training.
- Is not approved for transportability by military conveyance.
- Is not approved by the Surgeon General’s Office for health and safety.
- Is the unit commander’s responsibility, as far as accident, injury, or fatality to troops is concerned.

Additionally, it is illegal for units to procure centrally funded equipment with their operations and maintenance money. However, leasing and renting remain attractive options and support Future Engineer Force concepts. A construction equipment lease study has been initiated with the approval of the Army Business Initiative Council. The study seeks to determine how a rent/lease/buy/contract acquisition strategy for providing construction capabilities might be executed and will identify the legal, policy, budget, and requirements changes necessary for implementation. The study will include a trial phase with certain types of engineer units.

# **“We must be creative and open to new engineer organizations and equipment that are more multifunctional, deployable, and tailorabile.”**

Why conduct a study? What's wrong with buying? In a resource-constrained environment, we must look at new ways to deliver engineer effects on the battlefield. The upside of leasing/renting is that it gets more reliable systems with embedded diagnostic technology into units. Leasing/renting has a place in the Army in certain situations, but it does come at a price. For example, the projected cost of renting a 5-cubic-yard loader or backhoe loader to support Operation Iraqi Freedom is an estimated \$10,000 per month. Longer-term, “always available” equipment leasing is typically not cost-effective either, as the break-even point is about 4 years. Since the Army keeps construction equipment for 20-plus years, leasing over the entire period would cost five times the price of buying new equipment. Could “just-in-time delivery” leasing for training and deployments be made more affordable? The lease study will evaluate the feasibility of leasing, answer the tough questions, identify prohibitive policies and regulations, make recommendations on potential equipment-leasing candidates, and determine the impact and risks associated with dependence on leasing.

On the procurement front, recent severe cuts have left construction equipment modernization at its lowest funding levels in years. Approximately \$150 million per year is required for life cycle replacement of equipment. Current funding levels are less than one-third of what is required. Until decision makers understand the true cost (such as poor operational readiness, last-minute training, potential safety issues, transportability issues, and contractor logistics support costs) of rent/lease/unit-buy alternatives, funding levels are likely to remain low.

## **The Road Ahead**

Where is the engineer force going? A Future Force concept with modular, tailorable organizations is being developed. New analyses and operational requirements documents are being developed. A Future Force centered around the Future Combat System is being planned. Dramatic change is coming, but the engineer role is not clearly defined yet. Currently, there are no engineers in the unit of action (UA), although this may change. The unit of employment (UE) and the engineer forces and equipment within it are still being developed. One thing we know is that much of the same type of equipment being used today will be required tomorrow. The numbers and proper mix of equipment are the big unknowns at this point and make selling the relevancy of construction equipment to the Future Force much more difficult. In the near term, the 3d Infantry Division and 101st Airborne Division are reorganizing, putting more pressure on

the Engineer Regiment to fight for and define the Future Engineer Force as soon as possible.

## **Conclusion**

The Engineer Regiment must educate joint and Army leaders on our transformational vision. We must seek better, more innovative ways to get our missions done. As the Army evolves through changing priorities and processes, the impact on engineer functional areas must be assessed to ensure that we can make the case that we are critical to the fight. We must look across the doctrine, organization, training, materiel, leader development, personnel, and facilities (DOTMLPF) and find new solutions to old mission needs. We must be creative and open to new engineer organizations and equipment that are more multifunctional, deployable, and tailorable. This may require tradeoffs when the benefits of military-specific equipment outweigh the reliability and lower per-unit cost of commercial construction equipment. We must be realistic and not just focus on engineer missions; we must think and plan as joint engineers and focus on being successful. That means assessing risks, strategizing our POM build, seeking joint and other Army proponent support for our capabilities, getting more bang for our buck, and lowering acquisition and sustainment costs. We must think and leverage joint capabilities and embrace a joint expeditionary mindset. We must consider divesting certain missions if it makes sense to do so, while ensuring that our Regiment remains adaptable, flexible, and responsive. We must ensure that the value of construction capability is recognized, especially by the leaders who are making critical funding decisions.

We rely on input from the field to ensure that our requirements reflect reality. If you have ideas to help sell construction capability or the need to replace existing construction equipment—and promote its critical role in the Future Force—please call the Directorate of Combat Developments, Engineer Division, Mobility Team, DSN 676-7338 or 573-596-0131, ext. 37338.

*Mr. Hegle is chief of the Mobility Team in the Maneuver Support Center (MANSCEN) Directorate of Combat Developments (DCD), Engineer Division, Fort Leonard Wood, Missouri. He has 17 years of combat developments experience, managing construction equipment requirements development the last 5 years.*

*Mrs. Pryor is a combat developments materiel analyst, working for the Mobility Team in MANSCEN DCD, Engineer Division. She has worked on requirements development and fielding of construction equipment systems for 11 years.*